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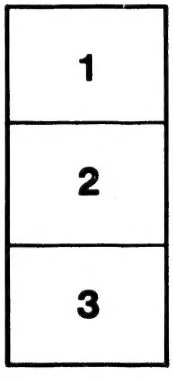

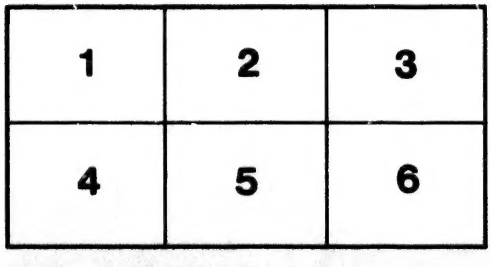

THE

LUMBER TRADE

OF THE

OTTAWA VALLEY,

WITH A DESCRIPTION OF SOME OF THE

PRINCIPAL MANUFACTURING

ESTABLISHMENTS.

THIRD EDITION.

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THE

Lumber Trade of the Ottawa Valley.

A short preliminary description of the course of the noble river which gives its name to the principal lumbering region of Canada, will not, we hope, be uninteresting to the general readers of this little work. Although few adventurous tourists have traced the Ottawa to its source, amidst the forest solitudes of the far northern wilds, from all such travellers we hear glowing accounts of the magnificence of the surrounding scenery, and the vastness of the dense, primeval forests which clothe its banks. The Indians, in their harmonious language, named this beautiful stream the Kitche-sippi, or Great River; and when we contemplate the mighty cataracts, and sleeping lakes, the foaming torrents and furious rapids, the gigantic cliffs, and monster boulders which distinguish its rapid journey towards the sea, we cannot but be struck with the appropriateness of such an appellation. The other name, Ottawa, is also Indian in its origin, and is pronounced Ot-taw-wagh; the word signifies the "human ear," but in what consists its appropriateness as applied to either river or city, is a mystery that has never yet been solved. Probably some mighty chief, of the ancient tribe of

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Indians who dwelt in this region ,was so named as a compliment to his excellent oral qualifications, and bequeathed his name, not only to his descendants, but also to the river in whose waters they fished, and upon whose banks they raised their wigwams. This tribe, the Ottawas, were driven from their hunting and fishing grounds in the Ottawa valley by another tribe, the Iroquois, and retired to the district bordering on Lake Huron, and to this day a few descendants of the once numerous and powerful tribe are still living on Great Manitoulin Island. The valley of the Ottawa, *i. e.* that portion of country which is drained by the Grand River and its tributaries, contains an area of about 80,000 square miles most of it good land, capable of improvement when brought under cultivation, and producing in its wild state, some of the finest and most valuable timber in the world. Although this region furnishes so large a portion of our Export trade, and contains some of the grandest and most picturesque scenery on this continent, it is but little known to Canadians, and still less to English people, with the exception of those immediately connected with the lumber business. Few, save the hardy raftsman, steering the fallen kings of the forest to the distant markets of the Old World, and the adventurous trappers in search of precious fur-bearing animals, have ever seen the full magnificence of Nature's charms in this untrodden region. Now, however, the time is coming when the Ottawa Valley will be opened up to the world; railways are projected, and some in the course of construction which will bring the splendours of its scenery within the reach of all; and soon the tourist will wander where formerly "human foot hath ne'er or rarely been;" and the pencil of the artist will repro-

duce for distant lovers of the beautifnl, many a glorious scene whose loveliness has long been hidden from the enchanted eye of man. This beautiful river then, whose course to the sea, or rather to its confluence with the St. Lawrence, we wish to describe to an indulgent reader, is called indifferently either the Ottawa or Grand River, and is supposed to take its rise in some lake or lakes, situated about the forty-ninth degree of North Latitude, and seventy-sixth of West Longitude. During the first three hundred miles of its course it receives many tributaries and expands into large lakes only two of which, however, have been surveyed, called respectively the Grand Lake, and the Lake of Fifteen-Portages; the forest solitudes which border on its banks, have been rarely invaded save by Indian hunters and a few wandering trappers belonging to the Hudson Bay Company, and are uninhabited save by deer and other wild animals. If Indian tradition may be credited, one of the numerous lakes into which the Ottawa expands in this wild region, is nearly equal in size to Lake Huron, but its waters have never been navigated by white men. About three hundred miles from its source the Ottawa becomes better known to us, having been explored so far by Government surveyors, and here it expands into a long and narrow lake bearing the Indian appellation of Temiscamingue. This lake presents more than one hundred and twenty miles of unbroken navigation, and receives the drainage of a region containing an area of upwards of 30,000 square miles. Amongst the chief rivers which flow into this great basin, may be mentioned the Blanche which enters the lake at its northern extremity, being navigable for more than sixty miles beyond, and draining a level country with very good

land; the Nippawa which flows from a large lake to the eastward; the Montreal and the Ottertail which flow from a north-westerly direction and communicate also with Lake Temangamingue which in its turn is united to Lake Nippissing by Sturgeon River; and the Quinze which sweeps from the north-east where its tributaries intermingle with those of the St. Maurice and Saguenay. The scenery on the shores of this great lake is exceedingly varied, in some places the country being level as far as the eye can reach and well suited for agricultural purposes, whilst in other parts it is rugged and barren, rising abruptly from the water in vast granitic cliffs. The region around Lake Temiscamingue, and on the borders of the numerous rivers which flow into it on either side, abounds in the red and white pine timber so valuable to the lumbermen, many of whom have already established themselves here, and as their numbers increase, when the best lumber has been removed from the country lower down, it is probable that the agricultural districts situated at the upper and lower ends of the Lake, will be brought under cultivation to supply them with the necessaries of life. Settlers and colonization invariably follow in the wake of the lumbermen, who may indeed be styled the pioneers of civilization and development We must not forget to make particular mention of the River Keepawa which here flows into the Ottawa on its lower shore; it proceeds from a large lake of the same name, is remarkably deep and over three hundred feet wide, and empties itself into the Ottawa over a series of cascades 110 feet in height, but so noiselessly that at the distance of half a mile from its mouth, nothing is heard of the roar which might have been expected from

the fall of so large a body of water. After leaving Lake Temiscamingue we descend the Long Sault Rapid, which is about six miles in length with a fall of forty-eight feet, and enter another beautiful expansion of the Ottawa, called the Seven League Lake, into which the small river Anthony empties itself on the south side. This Lake is about seven miles long, and is followed by two formidable rapids called respectively, Les Montagnes, and Les Erables. Immediately below the last named rapid the Ottawa receives on its north shores the waters of the river Nottawissi which pours itself over a fall fifty feet in height, with a body of water nearly equal to that which forms the famous Montmorenci Falls below Quebec. After passing another rapid called the Cave or Cellar, the Ottawa receives the river Mattawa. which has a course of about forty miles from a westerly direction and is divided by only a short portage of three-fourths of a mile from Lake Nippissing. The voyageurs and trappers of the Hudson's Bay Company made use of this route to the far West, ascending the Mattawan to its source, thence by portage to Lake Nippissing, crossing which they entered French River, which, after a course of fifty-five miles, dropped them into Lake Huron: the distance of this route between the Ottawa and Lake Huron being about 120 miles. Below the mouth of the Mattawan the Ottawa flows in a narrow and rocky bed with strong currents and frequent rapids and falls, the most remarkable of these is called the Rocher Captaine, where the River descends over three distinct falls; the central rock is forty feet in height and the velocity of the current, impetuously bounding over the dark masses of rugged rocks which impede its progress, renders the scene strikingly grand and picturesque.

Below the Rocher Captaine falls, the Ottawa receives two tributaries on its northern, and two on its southern shore, of which the River Du Moine on the north is the largest and most important, and we then arrive at the tremendous rapids Les Deux Goachims. These rapids have a descent of about twenty feet and have been made navigable for timber by extensive slides and dams, erected by the Government at very considerable expense. Close beside these rapids on a point which projects into the River and commands one of the finest river views in Canada is situated a most comfortable Hotel; and here the first sign of approaching civilization is found in a regular distribution of the mails. The river below the rapids is about a mile in width, and runs so perfectly straight that a ball projected with sufficient force would follow the water for a distance of twenty-five miles. This splendid reach of the Ottawa is called Deep River, because rafts with 100 fathoms of chain have been unable to find anchorage in it, and much resembles the Saguenay in its scenery. The southern shore has high, but sloping and well-wooded banks, while on the northern, a bold and lofty mountain chain rises 600 to 800 feet above the water; one remarkable rock called the Oiseaux, towers bare and perpendicular to a height of nearly eight hundred feet and gives back a magnificent echo to the lively boat song of the Canadian *voyageur*. The topmost peak of this rock is called by the Indians, the Squaw's Leap, and tradition tells us of a despairing maiden who threw herself from it, hoping thus to rejoin more speedily the object of her love in the happy hunting grounds of the Indian spirit-land. The lower end of that part of the Ottawa, called Deep River bears the

name of Allumette Lake. It receives the waters of the Petawawa, one of the largest and most important tributaries of the Ottawa, being one hundred and forty miles in length and draining an area of two thousand two hundred square miles, all which country is productive of very fine and valuable timber. The waters of Allumette Lake are studded with numerous beautifully wooded islands, and the scenery much resembles, though it surpasses in beauty, that of the St. Lawrence at the well known Thousand islands. At the lower end of this Lake, near the mouth of a small stream called Indian River, is situated, on the Ontario side, the thriving town of Pembroke, which is growing yearly, in size and importance, owing to its extensive trade with the lumbermen of the surrounding region. It is sometimes called the capital of the Upper Ottawa, and is an active, busy little town.

After passing the short rapid of Allumette and the island of that name which is fourteen miles long and eight wide, we arrive at the beautiful expansion of the Ottawa called Lake Coulonge, altogether a navigable reach of water, fifty miles in length. On the northern shore of the Lake, the mountains rise to a height of 1500 feet, and the scenery is very varied and beautiful. Two important tributaries here enter the Ottawa on the north side, viz: the Black River which is one hundred and thirty miles long, and nine miles lower down the Coulonge, which is one hundred and sixty miles in length, both these rivers pass through a district producing the finest pine timber. At the foot of Lake Coulonge the channel is again divided by Calumet Island, which is about twenty-five miles long. The principal rapids on the northern side of the island, are called the Grand

Calumet, the Derange, and the Sables, whilst those on the Southern side bear the name of the Rocher Fendu, they are about seven miles in length but a portage road and slides for timber have been constructed at great expense and in a very substantial manner. From the head of the Calumet falls to the pretty village of Portage du Fort the river falls over a hundred feet, and the scenery around is exceedingly beautiful. The Rocher Fendu Lake, where the two channels which form the Islands re-unite, is surrounded by lofty banks, and beautified by numerous thickly wooded islands; here there is scarcely a ripple on the surface of the water, and its quiet picturesque beauty presents an admirable contrast to its impetuosity up above, where after passing over the Calumet falls with a furious leap, it descends a series of rocky terraces and dashes itself against the granite boulders that impede its progress until its waters are converted into milkwhite foam. At Portage Du Fort there are some fine marble quarries and collectors can obtain some beautiful specimens of mica combined with feldspar and quartz, and lovely pink and white statuary marbles. About six miles below Portage du Fort we come to a series of rapids called Les Chenaux; the river is here studded with small wooded islands between which the water rushes with great impetuosity, but excepting in very high water when some of the eddies become perfect whirlpools, these rapids are navigable for steamers. Passing les Chenaux, we arrive at Lake les Chats, a beautiful expanse of water about sixteen miles long and varying from one to four miles in width. A number of small islands are scattered over its surface and as the lake is perfectly straight, the placid beauty of the scene is presented to the eye in unin-

terrupted loveliness. The origin of the curious name of this lake and the rapids which succeed it has not been determined with certainty, some think that the Indians named it after the wild cat which was so frequently found in the neighboring forests, and that the early French settlers merely translated into their own language, its Indian appelation; others suppose that the name is owing to the fanciful resemblance between the rapids and the extended claws of a cat, whilst others again think it was named after the blossom of a shrub growing on its banks which is somewhat like the 'catkin' of the Old World. Among such various opinions our readers must judge for themselves the most probable derivation of the name les Chats. Three large tributaries swell the waters of the Ottawa at Lake les Chats flowing from the Ontario side, viz. the Bonne Chere which is about one hundred and ten miles long. The Madawaska two hundred and ten miles in length, and the Mississippi over one hundred miles long, and each of them draining a vast area of excellent timber producing land. At the mouth of the Madawaska is situated the important village of Arnprior, where there are extensive saw mills and also marble quarries. Immediately below the Lake occur the remarkable rapids of the same name. The river here is not far from a mile wide, and its course being barred by a huge ledge of limestone nearly three miles in extent, it pours its vast volume of water over the obstruction from a height of fifty feet by a series of falls; in high water as many as thirty-three distinct falls may be counted, separated from one another by islands. Over each of these cataracts falls a body of water equal to an ordinary sized river, and their picturesque beauty would attract crowds of delighted visitors had they occurred in

any country of the Old World. The rocks between the cascades are clothed with trees whose branches and foliage overhanging the water add greatly to the beauty of the scene. Tourists are conveyed past the interruption of navigation produced by these falls by a horse railroad, of rather singular construction and quite one of the curiosities of the Ottawa. It is three miles long and its commencement at Lake Chats being fifty feet higher than its terminus at Lake Chaudiere or Deschêne, the latter is rather elevated and has to be approached by a lofty staircase. The rails are laid on piles of squared trees and as the ground is frequently very uneven, being sometimes a swamp and sometimes a ridge of granite, it has been necessary at times to pile the timber over twenty-five feet from the ground to maintain the necessary level of the rails. There is no fence or railing of any kind at the side, and the whole seems rather a dangerous route to an inexperienced passenger, but we believe no accident has ever occurred though it has now been constructed for a number of years. After passing the Chats Rapids, the Ottawa receives on the South side, the waters of a small stream called the Carp, and almost directly opposite on the North side those of the Quio, also a small river, but one which drains a country producing some of the most valuable white pine timber in the world. We now arrive at Lake Deschêne or Chaudière, a lovely expanse of water, about thirty miles long, and from one to two in breadth. The land on either bank is remarkably fine, and in general, well settled and cultivated; and as we approach Ottawa, we meet with fine farms, and handsome houses and grounds in abundance. The pretty town of Aylmer is situated at the lower end of the lake,

about eight miles from Ottawa on the North side, and just above the succession of rapids which precede the grand falls of the Chaudiere. The rapids continue for about five miles, and have altogether a descent of about sixty miles, and are immediately followed by the magnificent falls which form one of the loveliest views on the Ottawa. These falls are second only to Niagara in height and extent, the ledge of rock over which they fall being only sixty feet in height while the river above them is five hundred yards wide; but the volume of water is nearly equal to that of Niagara, and the surrounding scenery, with its magnificent view of the Parliament Buildings of Canada, is far more varied and beautiful. Immediately below the falls on the north side of the river is the village of Hull, the great lumbering depot of the Ottawa, of whose immense and flourishing mills and factories we shall have more to say in another place. Opposite Hull on the south bank of the river, stands the City of Ottawa, whose site 30 years ago was an unprofitable farm; at present the political metropolis of Canada; it numbers 25,000 inhabitants, contains many large factories and important buildings, and is yearly growing in size and importance. At New Edinburgh, a suburb of Ottawa, lying in an easterly direction, the river receives the waters of the Rideau, a large stream having a course of one hundred and sixty miles; its mouth is divided into two distinct falls by an island; the river falls into the Ottawa over a perpendicular rock of blue limestone, a distance of fifty feet, and from the peculiarity of its fall, which is supposed to resemble a watery curtain, it derives its French name of Rideau. About a mile lower down on the north side is the mouth of the Gatineau, the largest of the tri-

butaries of the Ottawa. It has been surveyed for over three hundred miles from its junction, and there is a large river supposed to proceed from some large inland lake in the unknown forests of the North. The Gatineau drains a vast area of fine timber-producing land, and on its banks have been erected some of the largest saw-mills in Canada. A few miles below the mouth of the Gatineau the waters of a small river, La Blanche, are discharged into the Ottawa, and soon afterwards those of the river Aux Lievres, which has a course of about two hundred and sixty miles. Next comes the mouth of the North Nation, and nearly opposite, on the Ontario side, that of the South Nation, each of which is about one hundred miles long. Below the confluence of the North Nation the Ottawa receives the river Rouge, which has a length of about ninety miles, and below that again the river, Du Nord, which is about one hundred and sixty miles long. After these two rivers the Ottawa receives no other large tributary until close to the junction of its southern Branch with the St. Lawrence. Below Montreal the River L'Assumption flows into it after a course of one hundred and sixty miles. At its mouth the Ottawa forms the island upon which stands the city of Montreal and the rush and volume of its waters is so great that it drives its larger but quieter sister, the St. Lawrence, completely upon the south bank, while the difference between its placid blue water and the dark and turbulent tide of the Ottawa is clearly discernable. The Island of Montreal and Isle Jesus divide the mouth of the Ottawa into three branches; in two of these the channel is interrupted by rapids, but by the north branch the lumber of the Ottawa region finds its way to the St. Lawrence and finally Quebec. The waters of this grand river are not merged in those of the St. Lawrence until near

Bout de l'Isle below Montreal Island, one hundred and thirty miles from the city of Ottawa, and about six hundred from its source. From Ottawa to Montreal the river, with one interruption, is navigable for steamers, and the trip, in its varied beauty of river, lake, and forest scenery, is unrivalled in Canada or on this continent. In the passage from Ottawa to Grenville, a distance of fifty-eight miles, the views are those belonging to a noble river passing through a richly wooded country, where dense forests, smiling farms, and busy villages succeed one another on its banks; at Grenville commence the Longue Sault Rapids, and the interruption of navigation is overcome for the tourist, by a comfortable railroad twelve miles long to Carillon, where he again embarks and almost immediately glides into the beautiful Lake of Two Mountains, so famous for the loveliness of its scenery; then passing the rapids of St. Anne by a short canal with one lock, he arrives at Lake St. Louis, and the St. Lawrence River, having spent exactly one day in the transit between the two cities. In this short sketch of the course of the Ottawa many of its smaller tributaries have been omitted, but enough have been mentioned to show the vast extent of country comprehended in the broad Valley of the Ottawa. The river, as we have shown, like the St. Lawrence, consists of a series of wide expanses or lakes connected together by rapids of greater or less length and its prominent characteristic is its great volume and the impetuosity of its course. In ascending it we meet with every variety of river and lake scenery and the tourist is never fatigued, for the constant variety makes every view, from rugged grandeur to placid loveliness, appear novel and delightful. Having given this general view of the Ottawa river and

its surrounding country, before we enter upon the drier details of the lumber trade which is carried on upon its banks and those of its tributaries, we will strive to bring before our readers an interesting sketch of the course of a lumber raft, from its formation until its final departure at Quebec for the distant markets of the Old World. As the principal timber producing districts of Canada are in the possession of Government, the first step of the manufacturer is to obtain what is called a timber berth or limit. These are sold by auction to the highest bidder, the price ranging generally from one dollar to a dollar and a half per square mile. Theoretically the limit is ten miles square, or 100 miles in extent, but owing to the topographical features of the country they are of all sizes, from 24 square miles and upwards. The limit holder becomes a yearly tenant of the Government at a fixed rent, and in addition pays a duty of one halfpenny per cubic foot of square timber taken out, and of 5d. on each standard log of 12 feet long and 21 inches in diameter. 31,600 square miles of forest were rented in 1867, from which the Government derived a revenue of 361,670 dollars. Having secured the limit the next step is to dispatch a party of experienced scouts, generally Indians or half-breeds, to examine the land and seek out groves of valuable timber. The skill of these self-taught surveyors is sometimes very remarkable, they will explore the length and breadth of the unknown territory and report upon the value of its timber, the situation and capabilities of its streams for floating out timber and the facilities for hauling and transportation. They often sketch the surface of the country, showing the position of its streams and lakes, its groves of timber and its mountainous or level appearance, with a skill and ac-

curacy which is truly marvellous. Having, with the aid of these scouts, selected a desirable grove, a shanty is constructed of the simplest description, being generally built of rough logs with a raised hearth in the centre for a fireplace, and an opening in the roof for a chimney. A double row of berths all round serves for sleeping accommodation, while from a wooden crane over the perpetual fire swings the huge kettle which, with the accompanying pot, serves all the purposes of cookery. The domestic economy is conducted upon strict temperance principles; tea is the constant beverage of the lumbermen, and they consume it in quantities, and of a strength which would effectually destroy their nerves if they possessed those delicate organs. In point of fact the beverage of the woodman ought to be called *tea soup* it being an infusion entirely different from that of our city drawing rooms. They place a couple of handfuls of tea in a kettle of cold water and hang it over the fire till it boils and attains a strength and fullness of flavor only palatable to throats which admire body in the fluids they imbibe. Many of these hardy men drink a pound of tea per week, and some of them double that quantity of the Chinese shrub, and without feeling any ill effects either from that or the salt pork which is the other staple article of diet. Perhaps the strong tea counteracts the fat pork, and *vice versa*. The stores of the lumbermen are usually carried up to their forest shanty late in the autumn, and all preparations are made to commence the work of felling the giants of the forest. White pine is generally found on undulating ground, mixed with other timber, and has to be selected with considerable care—none but a lumberman being able to detect sound from unround trees. Red pine, on the contrary,

grows in unmixed groves, and among thousands of trees there will not be found one diseased trunk. Around you stretches a vast sandy plain from which thousands of smooth straight trees spring to a height of forty or fifty feet without branch or leaf, then spreading out into the magnificent evergreen foliage, which distinguishes what is commonly called the Norwaypine. In connection with the lumbermen there usually works a cheaper class of men, who cut roads and haul the levelled trees to the stream or the main road from the forest. Having worked in the grove of trees all through the winter, at cutting down and then squaring the selected trees, the lumbermen next proceed to draw them to the nearest branch or tributary of the Ottawa, and great activity is displayed in getting ready for the start or drive when the ice breaks up, usually about March or April. If the stream is not large enough for *cribs i. e.* small rafts containing about twenty sticks of square timber fastened between two round logs, called floats, it is drifted down separately, the lumbermen keeping up with it either along shore or in canoes, and keeping the stragglers well together with long poles. When the larger stream is reached cribs are formed, the round logs at the sides and heavy transverse pieces on the top keeping the enclosed square timber from injury, and the stream carrys it down with its gang of men and provisions to the broad bosom of the Ottawa. This river from Lake Temiscamingue to its mouth, is navigable for cribs and rafts of timber, though it is sometimes necessary at rapids or falls where no slides are yet constructed, to break up the crib and remake it after the separate sticks have floated over the falls. A boom is usually thrown across the stream below the rapids to prevent the timber

floating down too far. In places where the width of the river will admit it, many cribs are fastened together forming a raft, on board which with plenty of provisions, sail set and a fair wind, the lumberman enjoys some rest after his previous toils. If the season has been favorable and he has a prospect of speedy payment for his labor by a good market of his timber in Quebec, this part of his journey must be a very pleasant one, The life of a lumberman is full of adventure and peril, but they are a hardy vigorous race, and seem to enjoy the most robust health, and care little for the fatigues they undergo. The trade in timber, is yearly becoming more extensive and the following statistics will convey some idea of its importance. During the last few years over 80,000,000 cubic feet of timber have been cut down in the forests of Canada, 13,000,000 dollars worth of which was exported to Europe and the United States, Great Britain alone taking 8,000,000 dollars worth. To cut down and prepare the timber, 15,000 men are employed in the forests, and in saw and plaining mills where it is manufactured for exportation there are 10,000 men employed. In the transportation of that portion of the timber which leaves Quebec, over 1'200 large ships and 17,000 seamen are engaged, and if we add those employed in the navigation of the rivers and lakes, and in the transit of partialy manufactured material to the United States, there would be 25,000 men engaged in transportation, or a total of 50,000 men employed altogether. Its freight for shipment is over 1,500,000 tons, and its accessories half as much more, and for the supply of this great industrial army, 26,000 tons of agricultural produce are annually required. As we have before stated, the

trade which has already reached such large dimensions is annually increasing—the lumbermen are yearly advancing farther and farther up the Ottawa and its tributaries, in search of the timber which has grown for centuries to maturity on their banks; and every year many of these men settle on the lands which they have observed in their wanderings, to be favorable for agricultural purposes. Thus the country of Upper Ottawa is becoming rapidly opened up for settlement and civilization, following the adventurous footsteps of the lumber merchant and his sturdy workmen. Many improvements have been made of late years by the Government in the navigation of the Ottawa and its tributaries, by the construction of slides and booms to facilitate the passage of timber past the frequent rapids and falls, and the following list of such works taken from the last Report of the Minister of Public works may not be uninteresting in this place :—

THE OTTAWA DISTRICT.

The Government works connected with the descent of timber in this district are on the following rivers :—On the Ottawa, main river, 11 stations; on the Gatineau, 1; on the Madawaska 15; on the Coulonge, 1; on the Black, 1; on the Petawawa, 31; on the Riviere du Moine 11.

List of Slide and Boom Stations on the Ottawa River.

The distances given are measured on the latest maps, following the channel through which lumber is floated down the river:

Names of Stations.	Distance from mouth of Ottawa, at St. Anne.
1. Carillon.....	27 miles.

Names of Stations.	Distance form mouth of Ottawa, at Ste. Anne.
2. Chaudière (north side, Hull, south side, Ottawa)	98 miles.
3. Chaudière (Little)	100 "
4. Remous	102 "
5. Deschênes Rapids	104¾ "
6. Chats Station	131 "
7. Head of Chats	134 "
8. Chenaux	152 "
9. Portage du Fort	156 "
10. Mountain	161 ",
1. Calumet	168 "
12. Joachim Rapids	249 "

The works at these twelve stations consist of:—3,000 lineal feet of canal; 4,884 do. slides; 20,855 do. booms; 826 do bulkheads; 1,881 do. bridges; 52 piers; 3 slide keepers, houses' and 3 store houses.

The necessity for the construction of dams to certain additional points on the Ottawa, so as to afford the means whereby a more abundant supply of water can be obtained for use in the slides, is again urged by parties interested. The lumber trade of this district has now attained such increased proportions that the works on which the supply of water to the slides is dependant, which answered their purpose tolerably well while the trade was in its infancy, have become inadequate to perform the services required, the result being that during dry seasons the passage of timber through the slides is difficult, owing to the scarcity of water. His Excellency the Governor General was pleased, by Order in Council, dated the 18th May, 1870, to authorize the Incorporation, by patent, of the 'Ottawa River Improvement Company,' a society formed for the purpose of effecting improve-

ments on the upper waters of the River Ottawa, to facilitate the descent of timber, the Company binding itself to adhere to certain specified conditions.

GATINEAU RIVER.—In ascending the Ottawa, the Gatineau is the first tributary possessing Government works.

These works are all at one station, about one mile frem its confluence with the Ottawa. They consist of:—3,071 lineal feet of canal; 4,138 do booms; 52 do. bridge; 10 piers, and one slide-keeper's house.

MADAWASKA RIVER.—The Madawaska is the second tributary in ascending the Ottawa, on which the Government has provided works for the descent of lumber.

List of the names of slide and boom stations on the Madawaska, numbered from the mouth of the river upwards:—1. Mouth of river. 2. Arnprior. 3. Flat Rapids. 4. Balmer's Island. 5. Burnstown. 6. Long Rapids. 7. Springtown, 8. Calabogie Lake. 9. High Falls. 10. Ragged Chute. 11. Boniface Rapids. 12. Duck's Island. 13. Bailey's Chute. 14. Chain Rupids. 15. Opeongo Creek.

The works at these stations consist of:—1,750 lineal feet of slides, 18,179 lineal feet of booms, 4,080 lineal feet of dams, 182 lineal feet of bridges, 43 piers 1 slide keeper's house, and 1 work shop.

The slide at High Falls sustained considerable damage in the spring of 1870, in consequence of the unprecedented height of the river, the water of which passing over the Nagle dam, caused a breach in that work through which the *debris*, mingled with large quantities of logs, escaped. This mass, on coming in contact with the slide, tore down five hundred feet of that structure. Efficient measures were taken for

the reconstruction of a portion of the damaged work, so as to admit of the season's lumber being passed through. This accident and the generally decayed state of the slide, will, it is feared, necessitate its being entirely rebuilt before the beginning of another season.

THE COULONGE RIVER.—The Coulonge is the third tributary in ascending the Ottawa, on which the Government has placed slides and booms.

The following is a list of the Government works on this river :—Boom at the mouth, 300 feet long, and one support pier. Boom at Romain's Rafting ground, 400 feet long and three support piers, Booms at Head of High Falls Slide, 1,848 feet long and six support piers.

BLACK RIVER.—Ascending the Ottawa, the Black River is the fourth tributary upon which works have been placed.

The Works consist of:—1,139 lineal feet of single-stick booms. 873 lineal feet of slide. 346 feet of glance pier. 135 lineal feet of flat dam.

THE PETEWAWA.—This is the fifth tributary in ascending the Ottawa, upon which Government slides and booms have been made.

Seven miles from its mouth the Petewawa separates into two branches. On these seven miles there are five stations; on the north branch there are eighteen stations, and on the south branch eight stations.

List of the slides and booms on this river, in the order in which they occur, from the mouth upwards :—1. Mouth of River. 2. First Chute. 3. Second Chute. 4. Third Chute. 5. Boisdur.

NORTH BRANCH.—1. Half-mile Rapid. 2. Crook-

ed Chute. 3. Between High Falls and Lake Traverse [a slide and a series of dams and Booms]. 4. Thompson's Rapids. 5. Sawyer's Rapids. 6. Meno Rapids. 7. Below Trout Lake. 8. Strong Eddy. 9. Cedar Islands. 10. Foot of Devil's Chute. 11. Devil's Chute. 12. Elbow of Rapids. 13. Foot of Long Sault. 14. Between Long Sault and Cedar Lake (south shore). 17. Between Long Sault and Cedar Lake (north shore). 18. Cedar Lake.

SOUTH BRANCH.—1. First slide. 2. Second slide. 3. Third slide. 4. Fourth slide. 5. Fifth slide. 6. Sixth slide. 7. Seventh slide. 8. Eighth slide.

The works at these 31 stations are as follows :—

ON THE MAIN RIVER.—2,363 lineal feet of slides, 8,469 lineal feet of booms, 2,077 lineal feet of dams and 7 piers.

ON THE NORTH BRANCH.—380 lineal feet of slides, 2,671 lineal feet of booms, 1,131 lineal feet of dams, and 23 piers.

ON THE SOUTH BRANCH.—2,134 lineal feet of slides, 388 lineal feet of dams.

RIVIERE DU MOINE.—The sixth and last tributary of the Ottawa upon which the Government works have been executed is the "Du Moine." The length of this river is about 120 miles, and it drains an area of about 1,500 square miles. It flows into the Ottawa from a northerly direction at a point about 256 miles above Ste. Anne. The works on this river, consists of a pier and retaining boom at its mouth, a single stick slide, and a series of flat dams from the mouth upward. They may be de-

tailed as follows, viz :—300 lineal feet of slide, 800 lineal feet of booms, 1,324 dams, and 6 piers.

From this extract it will be evident to all that the Government have been at great expense already in developing the Ottawa and its tributaries, and that still further improvements are intended by a Company which will render this natural highway to the Sea, still more valuable to the lumber trade of Canada. We will conclude this division of our subject by another little extract from Mr. Langevin's report showing the quantity of timber which passed down the Ottawa, during a year, from July, 1869 to July, 1870.

"Through the Chaudière Slide from Upper Ottawa country there passed the following products of the forest:

13,351 cribs of square timber containing 300,689 pieces.
196 " of deals.
81 " of flatted timber.

Total.....13,628

Through Hull slides from the Upper Ottawa :—
213,143 saw-logs.
2,300 pieces of flatted timber.

Through the Gatineau booms and other works :—
496,099 sawlogs.
7,002 pieces of square timber.
1,124 " " flatted timber.
1,123 " " round cedars.

This statement does not include the vast quantities of sawlogs brought down to supply the Chaudière Mills."

PRODUCTS OF THE CANADIAN FOREST.

Year ending June 30th, 1868.

	Quantity.			Value.
ASHES.				
Pot	Brls.		16,855	$ 63,408
Pearl	"		5,313	156,205
TIMBER.				
Ash	Tons.		3,909	32,715
Birch	"		23,183	164,356
Elm	"		33,657	309,518
Maple	"		472	3,368
Oak	"		63,841	723,911
White Pine	"		455,837	2,467,629
Red Pine	"		65,952	438,256
Tamarac	"		4,077	20,794
Walnut	M. feet		800	28,045
Basswood, Butternut, and Hickory	"		607	11,477
Standard Staves	Mill.		5,630	437,759
	No.	Pks	M	
Other Staves	5741	1115	11,194	345,437
Battens	Pieces		10,626	2,043
Knees	"		8,299	6,577
	M.		Pieces.	
Scantling	2,167		861,302	102,581
Treenails	Pieces		1,110	242
Deals	St. Hd.		146,396	3,989,761
	M.	Pieces.	Sd H.	
Deal ends	17	1,077	1,657	131,778
Planks and Boards	M. Feet		671,025	6,640,689
Spars and Masts	Pieces		12,080	85,538
Handspikes	"		978	371
	Mill.		Cords	
Lath and Lathwood	63,913		26,996	143,982
Firewood	Cords		226,378	495,648

Products of the Canadian Forest.—*Continued.*

Year ending June 30th, 1868.

	Quantity.		Value.
Saw logs & Shingle Bolts	$		$ 91,965
Saw logs for duty at $1 per M. feet.		17,984	98,524
Shingles	Mill	127,371	157,133
Sleepers and railroad Ties	Pieces	630,810	122,834
	Feet	Pieces	
Oars	35,762	15,348	20,769
Other Woods			388,887
Total			$18,262,170

Year ending June 30th, 1869.

	Quantity.		Value.
ASHES.			
Pot	Brls.	16,501	$ 565,094
Pearl	"	31,337	158,479
TIMBER.			
Ash	Tons.	4,479	35,213
Birch	"	31,337	223,213
Elm	"	35,965	319,102
Maple	"	467	2,695
Oak	"	67,954	820,489
White Pine	"	431,814	2,655,257
Red Pine	"	56,860	407,349
Tamarac	"	2,455	18,100

Products of the Canadian Forest.—*Continued*

Year ending June 30th, 1869.

	Quantity		Value.
Walnut	M. ft.	1,835	65,622
Basswood, Butternut and Hickory.....	M. ft.	573	8,452
Standard Staves.....	Mille.	2,811	362,181
Other Staves.....	Mille.	8,783	264,529
Battens	Pcs.	9,064	602
Knees and Futtocks	Pcs.	21,046	14,572
	Pcs.	M. ft.	
Scantling	872,463	14,572	180,965
Treenails	Pcs.	72,589	897
Deals	Std. Hd.	187,117	5,293,583
Deal ends.....	Std. Hd.	6,680	151,290
Plank and Boards...	M. ft.	677,859	6,690,956
Spars and Masts.....	Pcs.	23,182	63,413
Handspikes	Pcs.	3,019	373
	Mille.	Cords.	
Lath and Lathwood.	112,759	244,635	192,547
Firewood.....	Cords	244,565	527,883
Shingles.....	Mille.	118,547	535,083
Saw logs and shingle Bolts.....	.....	.....	105,548
Saw logs and shingle Bolts.....	.....	.....	53,092
Sleepers and Railroad Ties.....	Pcs	432,620	81,123
Oars	Pairs.	8,614	11,815
Other Woods.....	.....	.....	329,354
Total	.....	.....	$19,838,963

Timber and Lumber Exported from Ontario and Quebec since 1859.

Years.	VALUES OF TOTAL EXPORTS.			Value of Plank and Boards to the U. S.
	To all countries.	To Great Britain.	To the U. S.	
1860	10,061,147	6,130,776	4,846,611	3,027,730
1861	8,693,630	6,408,789	2,065,870	1,507,546
1862	10,051,147	4,896,538	3,253,589	2,279,567
1863	12,264,178	7,713,316	4,165,290	2,963,426
1864-'5	13,008,595	7,971,991	4,758,539	3,292,451
1865-'6	12,741,983	6,445,137	6,055,546	4,608,554
1866-'7	13,224,704	6,325,895	6,671,438	5,043,367
1867-'8	13,752,084	6,339,474	7,091,972	5,537,089
1868-'9	14,483,157	7,508,817	6,566,520	5,503,303

PROPORTIONS SHIPPED TO DIFFERENT COUNTRIES IN 1869.

	Per cent.
To United States—Plank and Boards.....	96,854
" " " —Other products of Forest.	40,935
To Great Britain—Plank and Boards	0,221
" " " —Other products of Forest.	52,965

THE LUMBER MANUFACTORIES OF THE OTTAWA AND ITS TRIBUTARIES.

In this division of our subject we propose to lay before our readers an accurate and interesting description of some of the largest lumber factories in the Ottawa Valley, more especially those of the Chaudiere, from which some idea may be formed of the magnitude of this, the staple trade of Canada, and its great importance to the country at large, on account of the numerous branches of Industry connected with and dependent upon this trade. The establishments described in this pamphlet are engaged chiefly in the export trade; they are in full work usually about five months of the year, from 1st of May to 1st October, and although much of the Machinery employed is self acting and labor saving to an extraordinary degree, a large number of hands are also employed. There are besides these larger establishments numerous smaller mills scattered over the country, wherever favorable locations and water power are to be found, and engaged generally in local trade. In addition to the large amount of capital actually invested in the lumber trade, its importance to the country cannot be over estimated, because the whole of the industrial pursuits connected with it, such as for the maintenance of workmen and their equipment, must be carried on in the immediate neighbourhood. In connection with this subject will be found below a summary of the quantities of hay, flour, pork, &c., &c., consumed at the forest shanties in winter, and the number of men, horses, and oxen employed, so that some idea of the value of such a trade to an agricultural country, can be partially estimated. Ottawa, with its advantageous

situation, with its splendid navigable river, its connection with the St. Lawrence and Lake Ontario, and its stupendous water power from the two falls, Chaudiere and Rideau, ought to become a hive of manufacturing industry. Not only could its present staple manufacture of lumber be carried on, but when its projected lines of railway and canals are perfected, raw material from the South and West could be brought here in exchange for manufactured timber, and the manufacture of cotton, cloth and woollens successfully engaged in. If its splendid series of navigable waters were connected by canals, and the communication with Lake Huron by the Matawan and French River perfected, St. Louis on the Mississippi, the great commercial centre of the Southern States, would be within 1,160 miles of Ottawa by water, and cotton could be brought from thence and manufactured here more cheaply than at Boston. At the Chaudiere a series of well devised hydraulic works, have rendered available for manufacturing purposes a fall about twenty-nine feet, and as the lowest water ever known gave a discharge of 811,956 cubic feet, the power would be equal to 33,956 horse power; in high water the discharge is equal to 7,467,360 cubic feet per minute, with a mean fall of sixteen feet, which is equal to 168,745 horse power.

We will commence our descriptions of the different mills situated at the Chaudiere and driven by this vast motive power, with a few figures to show what supplies of provisions and material each firm consumes in the course of the year in getting out 150,000 logs, which is the average amount manufactured by each of the six firms at the Chaudiere, in addition to

their other branches of business, and is equivalent to about thirty million feet of lumber.

This service requires during the winter season in the woods, 450 men getting out the logs, 300 men piling and forwarding, and 300 men teaming, using 300 teams. The average number of men employed by each establishment throughout the year is 637, receiving for pay $306,000. From this it will be seen that the lumber merchants of the Chaudiere alone employ about 4,000 men, paying annually $1,836,000, which is all spent in and around the neighborhood to the benefit of the trade of the country generally.

The amount of supplies consumed in the winter season by the gang of men required to get out 150,000 logs is as follows:—

825 bbls, pork.
900 " flour.
525 bush. beans.
37,000 " oats.
300 tons hay.
3,650 gals. syrup.
7,500 lbs. tea.
1,875 " soap.
1,000 " grindstones.
6,000 " tobacco.
75 boxes axes, 1 doz each.
60 cross-cut saws.
225 sleighs.
3,750 lbs. rope.
1,500 boom chains, 7 feet each.
45 boats.
900 pairs blankets.
15 cookeries,
375 cant dogs,

Costing, at a low estimate, about $54,367,50.

Some items are not, as a matter of course, consumed during the year, such as axes, ropes, blankets, &c., but the wear and tear on these articles is very severe, and they require considerable renovation every season.

These figures will tend to show that the lumber trade of the Ottawa consumes a large amount of the products of the country annually, distributing also a considerable sum of money to the benefit of the community.

BRONSONS & WESTON.

This firm was established in 1853, and was the first to take up land at the Chaudiere for the purpose of establishing a saw-mill on a large scale.

They are now proprietors of two large saw-mills, a carding and grist-mill, lath and splitting mills, and own a large tract of land used as a piling ground—the whole premises extending from near the wooden bridge to the point of the island. They get out annually about 175,000 logs, producing between 30 and 40 million feet of lumber, of which from 5 to 10 millions feet are always kept on hand.

The large mill contains 2 stock gangs, of 30 to 40 saws; 2 slabber gangs, 14 to 16 saws; 2 Yankee gates, 32 saws; 1 single saw; with the necessary butting and edging saws. The smaller mill contains 1 slabber gate, 1 stock gate, and butting and edging saws.

The wheels employed are Rose's improved and the Lamb wheel.

The lath mill contains two gangs for sawing laths, 5 or 6 saws each; a butting apparatus and picket saw; and a splitting mill for slabs; and produces 10 millions of laths.

In addition to their saw mills this firm have an extensive grist and carding mill. They employ for six months of the year, in shipping the productions of these mills, 26 barges with 5 men each, 4 steamboats, 9 men each, in all 222 men.

It requires $3,000 to pay the weekly wages of the employees of this establishment.

A. H. BALDWIN

Commenced business here in 1853 and owns two saw mills, a machine and blacksmith shop, and a ship yard for building barges.

He gets out annually about 125,000 logs, making 25,000,000 feet of lumber, and employs in the larger mill, 1 large slabber, 24 saws, 1 stock gang, 40 saws, 2 Yankee gates, 32 saws each, and 2 butting and edging tables; in the smaller mill there are 2 Yankee gates, 1 edger, and 1 butter. The wheels employed are Rose's improved.

He also owns 14 barges, 2 steam tugs, and one steam barge, manned by 8 men and gives employment throughout the year to about 400 men.

The ship yard, which has been in operation for about four years has turned out 16 barges and one steam barge, whose engines were made in the machine shop, owned by Mr. Baldwin, and employs 12 to 15 men. Mr. Baldwin sawed and shipped the first lumber for the American market from the Chaudiere, and in Company with Messrs. Harris, Bronson & Co., brought the first logs down the Ottawa from the Des Joachim, and also himself brought down the first logs from above that point.

J. R. BOOTH.

This gentleman first established business at the Chaudiere in the year 1858 by the manufacture of laths, and now carries on extensive operations in

sawing pine lumber. His mills are situated on the south shore of the Ottawa, just below the falls, and manufacture annually from 26 to 30 million feet of pine lumber, of which 12 to 15 million feet are always on hand on his piling grounds, which cover a space of about 10 acres of land.

These mills are fitted with gang and circular saws as follows:—

Three gangs containing 40 saws; 3 slabber gangs containing 18 to 20 saws; 1 Yankee gate containing 36 saws; 1 large circular saw for dimension timber; and a large number of circular saws for butting and edging.

The power employed is derived from the waters of the Chaudiere, assisted by 14 Rose's improved waterwheels, 2 for each gate, and upright and central discharge wheels.

This establishment gives employment, in the winter time, in the woods, to about 850 men and 300 teams, and in the summer time, at the mills, to 400 men and 40 teams.

Mr. Booth gets out 3 or 4 rafts of square timber in the season.

E. B. EDDY

carries on the largest business in the manufacture of the products from our forests on this continent, converting the timber of his enormous estates into every description of useful article, from saw logs and lumber to wooden ware and lucifer matches.

The business was first established in 1854 when Mr. Eddy commenced his operations in this section of the country, by manufacturing matches; and such are the resources of the valley of the Ottawa, and the immense advantages of the water power of the Chaudiere, that he, with the characteristic energy of

his race, has been able to build up a business on a gigantic scale, the productions of which are of vast utility to the people of this continent.

We give here the annual productions of these mills, and will speak more fully of the processes of manufacture hereafter.

Eddy's mills and piling grounds, cover a large tract of land on the north shore of the Ottawa, at the Chaudiere falls, and extend from above the falls to the Island opposite the Parliament buildings. They consist of one large Pail Factory built solidly of stone; a Match Factory also of stone; four saw mills of great extent, built principally of wood, and numerous other buildings, offices &c., necessary to such extensive operations, including a sash, door, and blind factory, and a general store.

In addition to these mills, Mr. Eddy has built a double track railway of over a mile in length which runs from his mills to the further extremity of his piling grounds, and enables him to distribute and pile the enormous amount of lumber produced, most expeditiously.

These mills manufacture annually about 40 million feet of pine lumber, of which there are always from 8 to 10 million feet on the piling grounds. They also manufacture annually 600,000 pails, 45,000 wash tubs, 72,000 zinc washboards, and 270,000 gross of matches, besides the productions of the sash, door, and blind factory.

The saw mills are fitted with gang and circular saws of all kinds and sizes, and the whole establishment gives employment to from seventeen to eighteen hundred persons, many of whom are girls employed in the manufacture of matches. In addition to these there are about four or five hundred men employed

in the woods, where Mr. Eddy owns "limits"—a tract of land of about 500 square miles in extent, the greater part of which is forest, but there are also some cultivated lands, and a growing village called Fort Eddy.

The force employed in driving the mills, is derived from the unlimited water power of the Ottawa, assisted by mechanical agencies of modern invention, and is equal to about 600 horse-power.

THE MATCH FACTORY

Consists of a range of buildings containing two machine rooms, two dipping rooms, two large packing rooms, a warehouse and shipping office, besides engine house, drying rooms, &c.

In the machine rooms, the wood is cut up by two different machines. The one, which is employed in making the best matches of seasoned wood, cuts up the blocks, already prepared, by means of fifteen small knives, which divide the wood into pieces the exact size of the match and then pass them through groves into the separate divisions in the racks placed ready for their reception at the rate of 4000 per minute from each machine.

These racks are pressed so as to place the small pieces of wood firmly in their position, and are taken to the dipping room. Each machine employs one man and one boy.

The dipping room for this class of match is divided into two compartments, in the first is a chaldron of molten sulphur, into which the racks are passed, each piece of wood receiving a certain quantity of sulphur. The racks are then taken to the other racks and dipped into the final preparation of phosphorus, &c., and then placed in iron safes built into the wall

all around the room to dry, which takes about two hours, when they are ready for packing.

In the other machine room wood is cut up on another principle by a machine which contains 9 knives, and cuts the match into double the required length, at the rate of 340 strokes a minute, making 9 at each stroke, or 18 matches, equal to over six thousand a minute.

These sticks being of green wood are then placed in open boxes, and taken to a drying room heated by steam pipes. When dried they are rolled up in circular form between bands of wadding by machines which distribute each separate piece of wood into equidistant parts. The rolls are then taken to the dipping room, where they are dipped on each end in the preparations of sulphur and phosphorous and hung up on racks to dry.

They are then cut in two by another machine, and are ready for packing.

The packing rooms are divided into several compartments, and occupied entirely by girls, who are employed in packing the matches first in the small paper wrappers, (which they prepare from material supplied them in their homes) and then into boxes of ¼ gross each, which are taken to the warehouse and shipping room.

This factory gives employment to about 50 men and boys and about 90 girls.

THE PAIL FACTORY

Is a large stone building of three stories high near the principal saw mill, where pails are manufactured at the rate of 2,000 pails and 150 wash tubs per diem. Every part is made by beautiful machinery. In one room the staves are sawn into regular

sizes, in another the bottoms and hoops are manufactured, in another the handles are turned, and in another the various parts are joined together, planed and finished.

The pails are then taken to the painting room, where they are painted and grained by patent India rubber rollers. They are then finished off and fitted with handles, after which they are packed in hay and made ready for shipment.

THE SAW MILLS,

Which are four in number and of great extent, contain every description of gang and circular saws, numbering in all 243 saws. The capacity of the saw mills is equal to the sawing of 20,000 logs per annum.

PERLEY & PATTEE.

This firm was established in the year 1857, and has very extensive mills on the Chaudiere Falls, with large piling grounds, through a portion of which are laid lines of rail for distributing, piling and shipping the lumber. They get out annually about 150,000 logs; producing 30 to 40 million feet of pine lumber. They employ a large number of men through the year; on an average over 800. Their mills are furnished with 2 slabbing gangs of 20 saws each; 2 stock gangs of 40 saws each; 2 Yankee gates of 32 saws each; 1 single gate and 1 re-sawing gate, with the usual complement of circular saws for butting and edging. The wheels employed are Rose's improved, 1 pair to each gate; and centre discharge for circular saws. This firm get out 500,000 feet of square timber per annum, making altogether about six rafts.

LEVI YOUNG.

First established his business at the Chaudiere in 1854, and owns one saw mill, getting out and sawing about 100,000 logs in the year, producing about 20,000,000 feet of pine timber. He employs one slabbing gate of 40 saws; one stock gate of 40 saws; one Yankee gate of 32 saws, and the necessary edging and butting saws. The wheels employed are Rose's improved, 1 pair to each gate. In addition to this, Captain Young gets out annually about 8 rafts of square timber, employing through the year from four to five hundred men.

WRIGHT, BATSON & CURRIER,

Ottawa Steam Mill

These fine mills are situated in the Village of Hull, (P. Q.), with 24 acres of land attached and enclosed, and with excellent piling grounds and shipping docks adjacent. The mills contain five gang saws, one large circular saw for cutting building timber, also saws for cutting laths, clapboards, &c. The capacity of these mills from May 1st to December 1st, is thirty million feet; the quantity usually cut averaging from sixteen to twenty-five millions. The timber limits belonging to this firm are situated on the river Madawaska, and are six in number, containing in all 275 square miles. There are three farms on the limits, well stocked with cattle and provided with convenient buildings, offices, &c. The main depot is at Griffith Renfrew, where there is a Post Office, also a general store, blacksmith and carpenter shops, &c.

The average number of men employed all the

year round ranges from 250 to 300 exclusive of those employed in freighting lumber away.

THE GATINEAU MILLS.

The Gatineau Mills, belonging to Messrs. Gilmour & Co., are situated at the village of Chelsea, about eight miles from the city of Ottawa and nine miles from the junction of the Gatineau with the Ottawa river. The scenery above and below the mills is exceedingly romantic and beautiful—four or five rapids and cascades, and sloping banks to the water's edge, covered with trees and foliage, render this portion of the river most picturesque and charming. The mills are situated on the south bank of the Gatineau above the high falls, and are surrounded by a series of booms and works of great magnitude upon which immense sums have been expended. The whole of the saw-logs which descend the Gatineau are caught in these booms, and a very faint idea can be conveyed to a stranger of the immense amount of skill required to separate those belonging to the Gatineau mills from those belonging to different manufacturers below.

During the summer this point of the river presents a scene of bustle and animation of the most extraordinary kind, and as the firm employs literally an army of workmen, the scene can be better imagined than described.

Below the booms, the worst point of the river has to be encountered by the logs descending the stream, and it is frequently enlivened by the appearance of perfect islands of stranded timber, technically called *jams*, and the efforts of the owners to set them afloat exhibit scenes of daring and endurance seldom witnessed elsewhere.

The mills belonging to Messrs. Gilmour & Co., consist of two large substantial buildings, and a smaller mill for preparing lumber for the American market, and they were commenced about thirty years ago. The water power used is equal to about five hundred horse power. There are 13 saw gates containing about 220 saws; and twenty edging, butting, and re-sawing circular saws. These mills will manufacture 230,000 feet, board measure, in eleven hours, or about 35 millions of feet per season. About one third of this lumber is cut for the Quebec market, and the balance for the United States. Attached to the mills, there are about three miles of wooden canal for conveying the sawn lumber to the piling grounds. Messrs. Gilmour & Co, possess timber limits to the extent of 1,700 square miles, whence they obtain the requisite number of saw-logs to supply these extensive works, and 1,000 men receive employment from them during winter and 500 in summer, including lumbermen, farmers, surveyors, &c., &c. They also employ 250 spans of horses and 80 yokes of oxen; and during each season they consume 40,000 bushels of oats, 600 tons of hay, 1,500 barrels of pork, and 3,000 barrels of flour, besides large quantities of clothing, boots, shoes, tea, tobacco, blankets, &c., &c., &c. These mills are amongst the most celebrated in the country, not only for the romantic beauty of the surrounding scenery, but for the perfection of the machinery employed and the order and good management exhibited throughout them.

We must not omit to mention that upon their timber limits this firm has no less than nine farms, comprising in all about 1,500 acres; the land is excellent; as much as fifty bushels of wheat to the acre having been raised some seasons. Of course

this is above the average, but the yield is generally excellent. The whole of the produce of these farms is consumed by the *employées* of the firm. On the banks of the river Gatineau they have four principal depots, from which supplies are sent to the lumbermen at work in the woods. One of these is distant upwards of 200 miles from Ottawa. This firm pays from $275,000 to $300,000 in wages annually. Mr. Mather is, and has been for some years, the Manager of the Gatineau Mills.

LE MOYNE, GIBB & CO.,

BUCKINGHAM.

The mills and limits formerly owned by Messrs. Thomson & Co., are now the property of Messrs. Le Moyne, Gibb & Co. One of the partners, Mr. McPherson LeMoyne, resides at Buckingham, and personally superintends the whole business; he was also the managing partner in the late firm of Thomson & Co.

These mills are situated on the river Du Lievre, about four miles back from the Ottawa river, and in conjunction with the mills belonging to Messrs. Jas, Maclaren & Co., on the opposite side of the river. have control of one of the finest water powers in Canada; the falls are 70 feet in height and the river Lievre being very deep and supplied by many large lakes in the north, there never is any scarcity of water, even in the driest summers. The timber lands and limits on the west side of the Lievre are held by Le Moyne, Gibb & Co., and those on the east by James Maclaren & Co.

The mills which are quite new, having just been rebuilt, are of large size and fitted with every

modern improvement, to save labour and to do good sawing; they have already cut up 125,000 logs between the 15th May and the 15th October. The business done at present is about 200,000 logs a year, which are sawn almost entirely into 3-inch deals for the Quebec market. A slide over two miles in length conveys the timber from the mills to the Basin, where the thin lumber is taken out and piled, and the deals are run into the water and rafted up into cribs.

All the logs sawed at these mills are made on the tributaries of the river du Lievre, which drains an immense extent of country. The two firms that work on this river have, at their own expense, built very expensive slides to pass their logs over different falls, and also constructed many booms, piers, &c., at different points, the Government never having expended anything on the River du Lievre for improvements of any kind, though the public have for very many years derived a large revenue from it.

HAMILTON & CO.,

HAWKESBURY MILLS.

This is one of the largest as well as one of the best known of the great milling establishments of the Ottawa Valley. It is situated about 60 miles from Ottawa city, on the south shore of the river, near the head of the Grenville Rapids. There are included in this establishment, four saw-mills, together with a grist mill, with four runs of stone, for the production of flour for the use of the raftsmen, shantymen and other employées, as well as for the neighbouring farmers. The mills contain 101 vertical saws and 44 circular saws, driven by 72 water wheels, and turn out from 35,000,000 to 42,000,000 feet of lumber per

annum. About five hundred men and boys are employed constantly by the firm at Hawkesbury alone, in summer. Some conception of the immense extent of the operations of this firm may be formed when we say that more than 3,000 tons of agricultural produce are consumed annually.

The Honourable John Hamilton resides at Hawkesbury; and the whole village and establishment bear evident signs of opulence and comfort.

The limits from which these mills obtain their supply of timber are situated principally upon the rivers Rouge, Gatineau and Du Moine. Messrs. Hamilton & Co. bring down from their limits 200,000 logs, on an average, annually.

THE FUTURE PROSPECTS OF THE LUMBER TRADE.

In the former pages of this little work we have endeavoured, both by description and statistics, to afford our readers some definite idea as to the vastness of the lumbering operations in the Valley of the Ottawa, and the importance of the trade to the varied interests of the country at large. To what proportions the trade may ultimately attain its increase during the past few years may be some small though very inadequate guide. When we remember that it is only within the last fifty years that the wealth and intelligence of the country have been employed in the development of this trade and the improvement of the Ottawa and its tributaries, we cannot repress an impulse of astonishment at the magnitude of the operations now in existence and the vast fortunes which have been made and are still making in it. One most pleasing fact cannot fail to impress anyone who studies this branch of manufacturing interest. It is that in all the great lumbering establishments where so many workmen are constantly employed, not only in the villages which surround the mills, but on the farms and in the distant forest shanties, great care has been paid to the comfort of the working classes and every indulgence and encouragement given by the proprietors to the people under their control. Indeed in all the phases of this trade none of the squalor and sickness which too frequently meet the eye and offend the sense in other branches of industry are to be found; the people are healthy, well-fed, and well-clothed, and the order and regularity—though obtained at considerable expense to the proprietors—is highly commendable

and satisfactory. In considering the future prospects of the lumber trade of Canada, we cannot but be struck with the thought that whilst every year the demand for lumber is increasing, and larger numbers of trees are being annually cut down to meet this demand, no provision is making for the renewal of the supply. The pine, to attain any size and value requires years of undisturbed growth, and the valuable kinds of hard wood as long or longer to reach perfection. The pine-producing districts of Canada have an area, north of the St. Lawrence, of about 287,711 square miles; and the district upon which the finer kinds of hard wood are to be found, wholly or in part, is about 22,000 square miles. Although such a range of forest land may seem at present almost inexhaustible, we cannot but think, and it is also the idea of practical business men with whom we have had conversation on the subject, that it would be well if the Government should establish large nurseries of young pine on the banks of some of the tributaries of the Ottawa, where seed could be sown and the young plants protected and cared for. The Government have plenty of land at their command, which would be suitable for such a purpose. The present cost of such an undertaking would be but small, and the benefit which might be reaped in the future from such a far-sighted policy cannot be calculated. An instance of one of the evil consequences of want of forethought in such matters is even now felt in Western Ontario. This district was formerly covered with the finer kinds of hardwoods such as oak, elm, and walnut, but the settlers in their haste to clear their farms cut down and burned indiscriminately millions of cubic feet of timber, which had they been preserved, would now prove a mine

of wealth. Now the principal supply of walnut, even for Canadian use, comes from Southern India. Considering then the immense number of trees which are being annually cut down for manufacture and exportation in the forests of Canada, and knowing that our forests are rapidly becoming cultivated farms and prosperous villages, we cannot but hope that the Government will, ere long, take some steps to provide for the future needs of the country by ordering seed to be sown and young trees of pine to be cultivated on lands suitable for such purposes.

Anyone who studies the geography and capabilities of the Valley of the Ottawa cannot fail to be struck with its advantages for all purposes of emigration. Although in some parts the land is rocky and barren, in general it is capable of a high degree of cultivation, producing easily forty or fifty bushels of wheat to the acre and yielding a rich return for the labour expended upon it. It has been well remarked that that cannot be poor land which will produce a fine tree; therefore our forest lands only need intelligent culture following upon the steps of the lumberman, to cause smiling fields to succeed the downfall of the former monarchs of the forest. A line of railroad is projected which will be of immense importance to the future of the Ottawa, we mean a railroad from Montreal to Aylmer and thence to Deep River and the Upper Ottawa. This line would pass through the entire pine region, not only conveyng merchandize and passengers, and the large trade incidental to the lumber region, from point to point, but opening up a new region for settlement and in connection with the Pacific railroad in a few years time throwing open a new market for our staple trade. The Province of Manitoba and the North

West Territory, which in less than ten years will be within railroad communication, do not possess any large tracts of forest lands like those of Ontario and Quebec, and as they increase in population and wealth will be another market for lumber merchants at no very distant day. Of the advantages of this railway we cannot speak as fully as the subject demands, but the following quotation from a late report of Mr. Keefer to the Privy Council mentions some of the important advantages to be derived from it:—

"What is required for any efficient system of settlement is *a base line of operations.* The rivers St. Lawrence and Ottawa, with their steamers, railways and markets, afford this in their immediate valleys. If the tributaries of the Ottawa, such as the Madawaska and others, were either navigable or provided with a railway along their valleys each independent settlement could be formed and sustained from such an artery. The peculiarity of the Ottawa and Huron tract as a wilderness one, is, that unlike the valley of the St. Maurice and the Saguenay, it is not necessarily acul-de-sac, but if opened through would form one of the shortest routes between the most important points east and west. In the face of other attractions it is hopeless, for the present, to expect that emigration and settlement can be attracted to this district by existing means of communication. If inveigled there, no valuable element of population will long remain cut off from communication with the railway world, in a country where this state of things is the exception rather than the rule.

A railway from the city of Ottawa to the ports of the Georgian Bay on Lake Huron would nourish existing settlements and give birth to new ones with-

in thirty miles on either side, wherever there was a suitable tract of land. It would drop the better qualities of sawn lumber from the interior mills into the St. Lawrence boats at Ottawa and the commoner kinds into Chicago schooners on Lake Huron. It would reduce the cost of supplies to the lumberman increasing his profit, and to that extent compensate for its interference with his monoply. It would find a market for the valuable fish known to exist in the inland lakes, and the still more valuable minerals more than suspected to be on their borders. Nor would it be confined to a local traffic. It would form part of the shortest possible route between Montreal and Lake Huron, and for the grain traffic between Chicago, Milwaukee, and Montreal, would compete with any other railway route. Such a road could be placed in direct connection with the northern portions of Simcoe, Huron, and Bruce, giving these districts direct communication with Ottawa, the political, and Montreal, the commercial, metropolis, on the shortest route; and if extended to Sarnia would bring the whole west into connection with it, making this present wilderness a thoroughfare for a great portion of the continent."

As a public work, in view of possible international relations, such a railway would be probably the only means by which communication between the granaries and dense population of the western peninsula of Canada and the great arsenals of Quebec and Montreal could be maintained. Neither the St. Lawrence Canals nor the Grand Trunk Railway could be relied on for this purpose; but such a route as that under consideration, connected with the tributary lines that debouche at Prescott, Brockville, Port Hope, and Toronto, would enable us to throw

men and supplies to any point and support a naval station on Huron and Ontario. If the Intercolonial road be desirable on military grounds, the Ottawa Valley line is much more so. The former would only bring aid to Quebec, a fortress not in need of it, and one which, however valuable to the empire would be of but questionable value to us after all else is lost. The Ottawa line is indeed a necessary continuation of the Intercolonial one, and if, as Mr. Keefer so well shows us, this line is valuable, as a continuation of the Intercolonial road, how much more valuable it will be as a branch of the Interoceanic line. The prospects of the country demand such a railroad and it will be to the interest of the lumber trade if our merchant princes will support the project with that liberality which is one of the characteristics of their class, and which, expended upon advantageous ventures, has conduced so much to their present prosperous condition.

THE PROCESS OF MANUFACTURE.

The saw-logs when got out of the forest are taken to the nearest point on the Ottawa, and left to be drifted down by the stream, each firm having a private trade mark on each log by which they are recognised. At the Chaudiere they are caught by booms spread across the river above the falls, and guided through the different slides to the respective mills where they are to be sawn.

At the mills the logs are hauled up out of the water by a powerful wheel always in motion, and so placed on the cradle which guides them through the saws.

There are various kinds of saws, each perform-

ing its particular duty in the process. The slabber-gate, which contains from 18 to 20 saws, cuts the outside of the log into boards of 1 in. thick, leaving the bulk in a slab of 14 inches in thickness, and of different widths according to the size of the log, 37 in. being the largest. As the saw gets through the end of the log, these outside pieces are taken away and trimmed to the required size by the butter and edger.

The large slab is then turned over on the flat side and run through the stock gang which contains from 30 to 40 saws placed about 1 inch apart and sawing the slab into 1 inch boards. These saws can be changed at will to saw 2 inch or 3 inch boards. It takes these saws about 8 minutes each to get through a log of the ordinary size. The Yankee-gate is a combination of the slabber and stock gate, and contains about 32 saws. This gang saws both ways, the teeth of the slabber facing one way and those of the stock the other. By this means the log is sawn by the slabber as described above and the slab turned over and sent back through the stock gate, so that while the slabber gang is dividing one log the stock is finishing off another. The single saw is used for sawing the logs into pieces of about 3 inches square, the gate acting in the same way as the other gangs, but with only one saw, which performs the whole work. These gangs are all worked on upright pivots, the machinery underneath forcing the gate up and down at a considerable rate, on the same principle as the old saw-pit fashion, where one man works on top of the log and another underneath.

The butting and edging tables are for the purpose of taking off the rough sides and ends of the planks as they come from the larger gangs, and are fitted with counter saws for this purpose.

The planks are laid on the table, and a revolving chain with catches in it carries the wood along past the circular saw which takes off the outside pieces leaving the plank the required width and length, and disposing of the waste and damaged wood.

As the planks pass over these tables the foreman marks each one according to its size, and they are then wheeled out on hand trucks to be taken to the piling grounds.

These piling grounds are of vast extent, and are in many cases supplied with railways over which the lumber is drawn in horse trucks; but in some cases the lumber is slid through a hole into a large trough of running water which carries it to its destination.

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	Ottawa	9 30	1 00	10 30	10 00
31½	Kemptville	11 10	2 40	12 55	11 40
52	Prescott Junction	12 15	3 50	2 40	1 00
54	Prescott Wharf	12 25	4 00	2 50	1 10
		P. M.		P. M.	A. M.
	G. T. R. Toronto Arrive.	A. M. 1 30	P. M.	.....	P. M. 1 30
	G. T. R. Montreal do	.....	11 30	.....	1 00

GOING NORTH.

Total Distance.	STATIONS.	No. 1 Express.	No. 3 Mail.	No. 5 Express.	No. 7 Accommodation.
		A. M.	P. M.	A. M.	P. M.
	G. T. R. Toronto Deprt.	.....	7 30	6 10	.....
	G. T. R. Montreal do	8 00	.....	.....	8 00
		P. M.	A. M.	P. M.	A. M.
	Prescott Wharf	1 30	7 15	5 50	2 00
2	Prescott Junction	1 45	7 30	6 05	2 20
22½	Kemptville	2 40	8 35	7 00	4 05
54	Ottawa	4 10	10 20	8 25	6 15

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